

VIRGINIA STANDARDS OF LEARNING

Spring 2005 Released Test

END OF COURSE GEOMETRY

LARGE PRINT FORM

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Printed in the United States of America

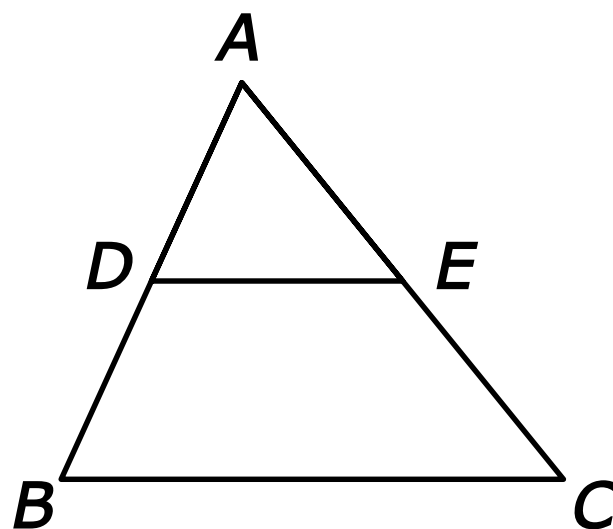
ISBN 999-8279-54-2

Geometry

DIRECTIONS

Read and solve each question.

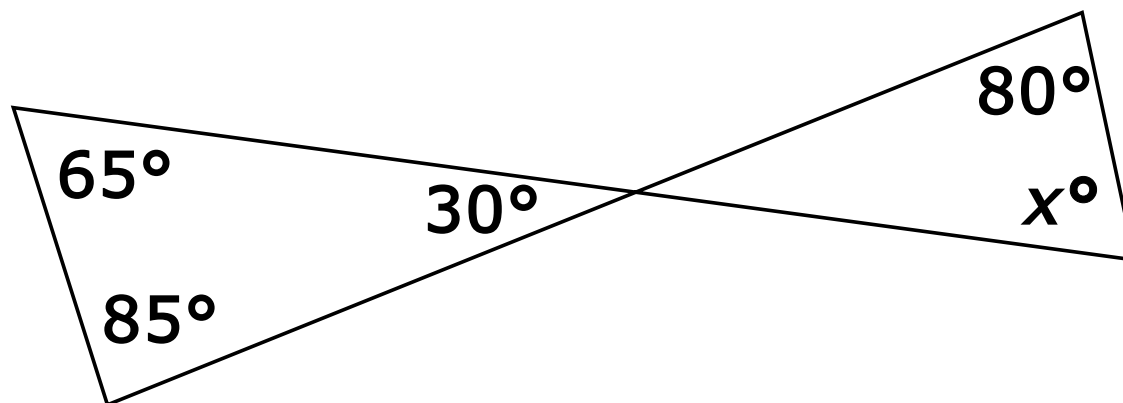
SAMPLE



If $\triangle ABC$ is similar to $\triangle ADE$, then $AB : AD = ? : AE$.
Which replaces the “?” to make the statement true?

- A AC
- B AE
- C DE
- D BC

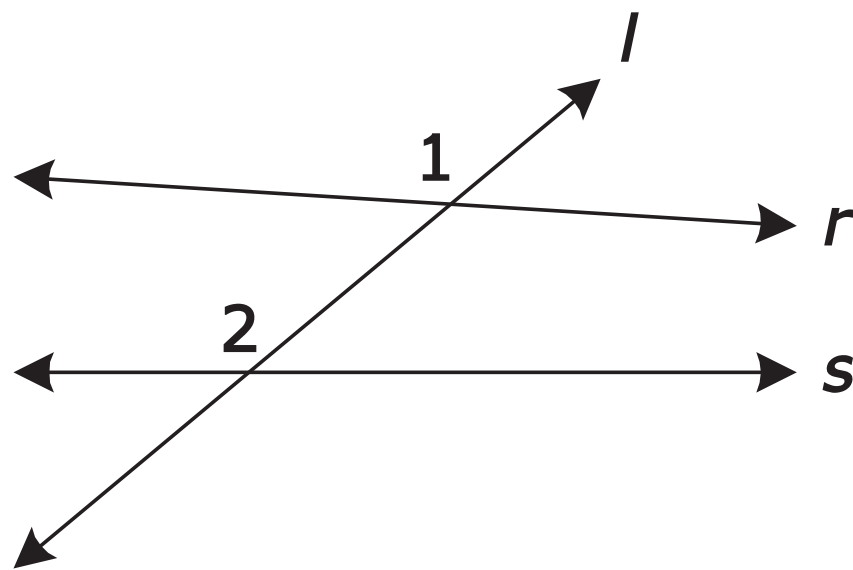
1 The measures of some angles are given in the figure.



What is the value of x ?

- A 65
- B 70
- C 80
- D 85

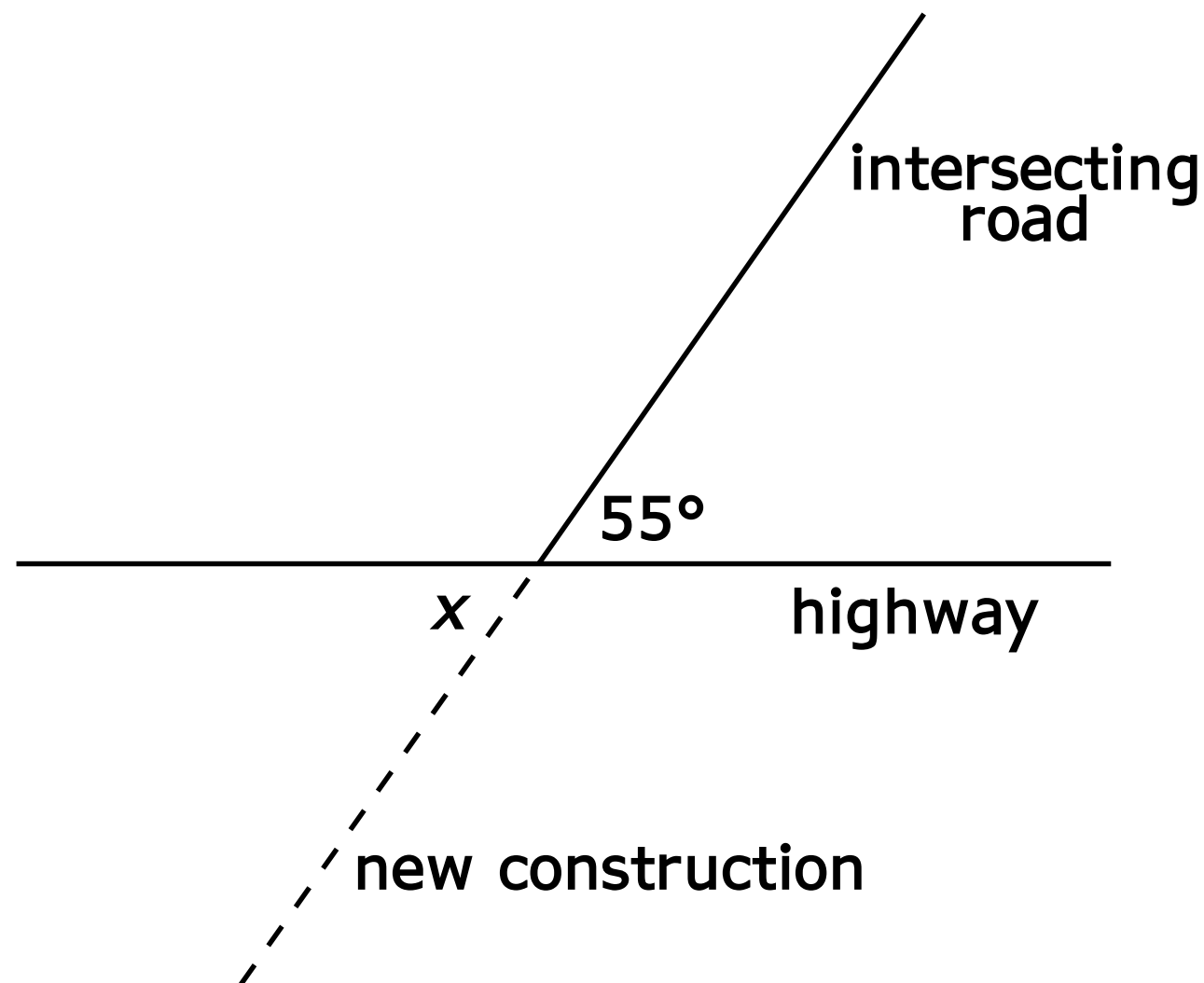
2 The figure shows line l intersecting lines r and s .



In the figure, $\angle 1$ and $\angle 2$ are

- F alternate interior angles
- G alternate exterior angles
- H corresponding angles
- J consecutive interior angles

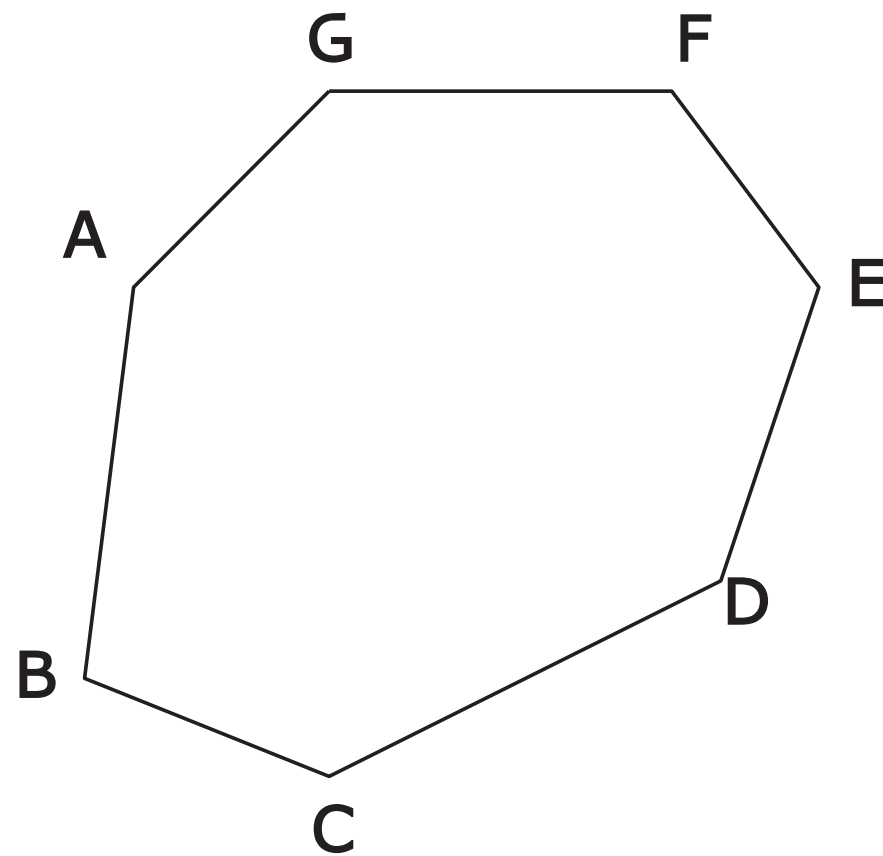
- 3 The Department of Transportation wants to extend the intersecting road across the highway, as indicated by the dotted line.



What should x be to ensure that the intersecting road and the new construction form a straight line?

- A 35°
- B 55°
- C 105°
- D 125°

4 The polygon shown is convex.



The sum of its interior angle measures is

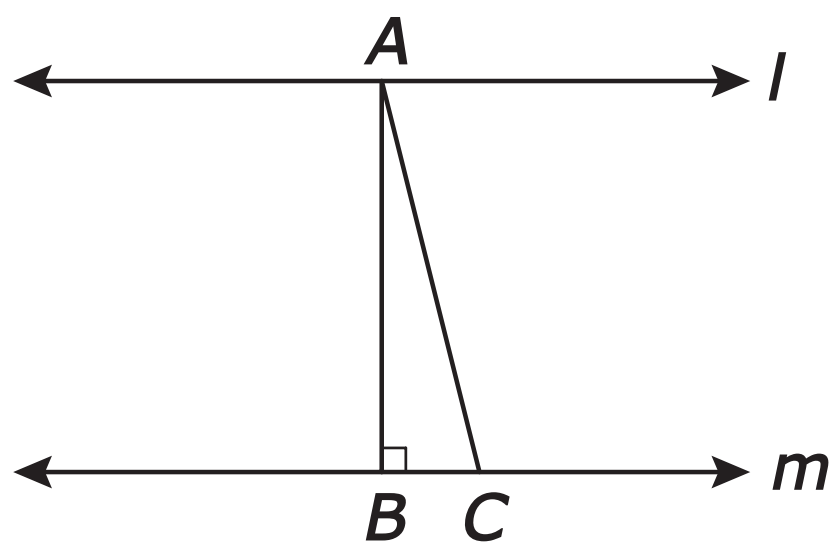
F 900°

G $1,260^\circ$

H $1,620^\circ$

J $2,520^\circ$

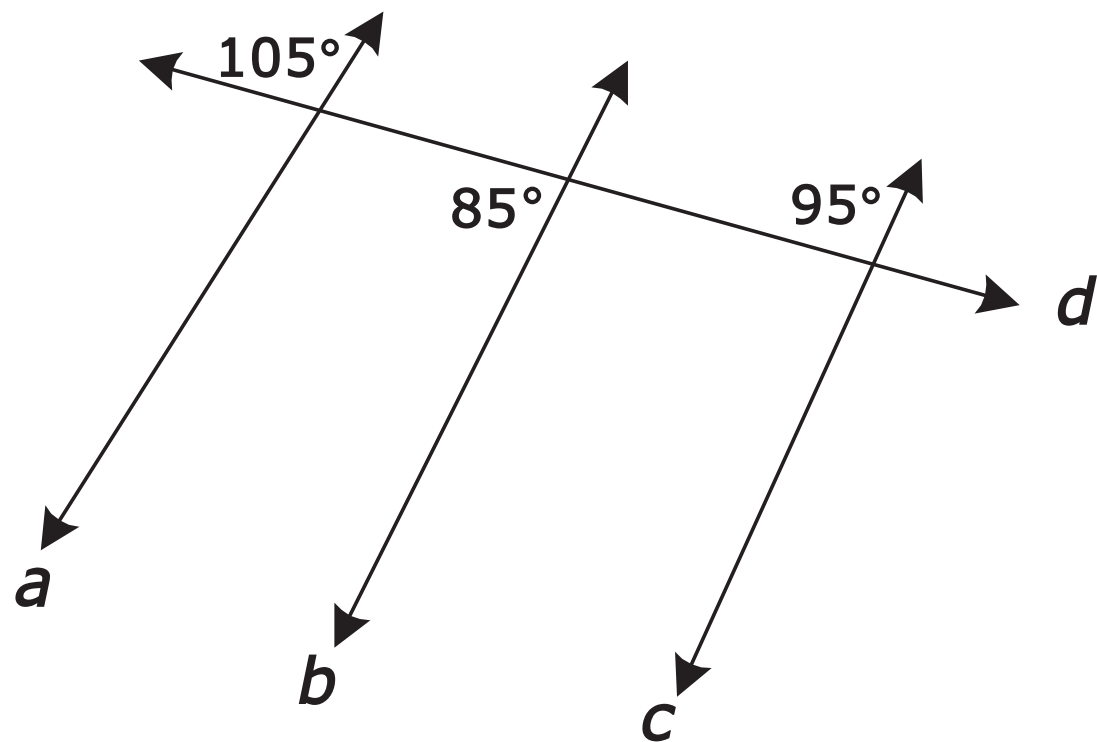
5



Which statement would be sufficient to prove that line l is parallel to line m ?

- A $\overline{AC} \perp m$
- B $\overline{AB} \perp l$
- C $\overline{AC} \perp l$
- D $\overline{AB} \perp \overline{AC}$

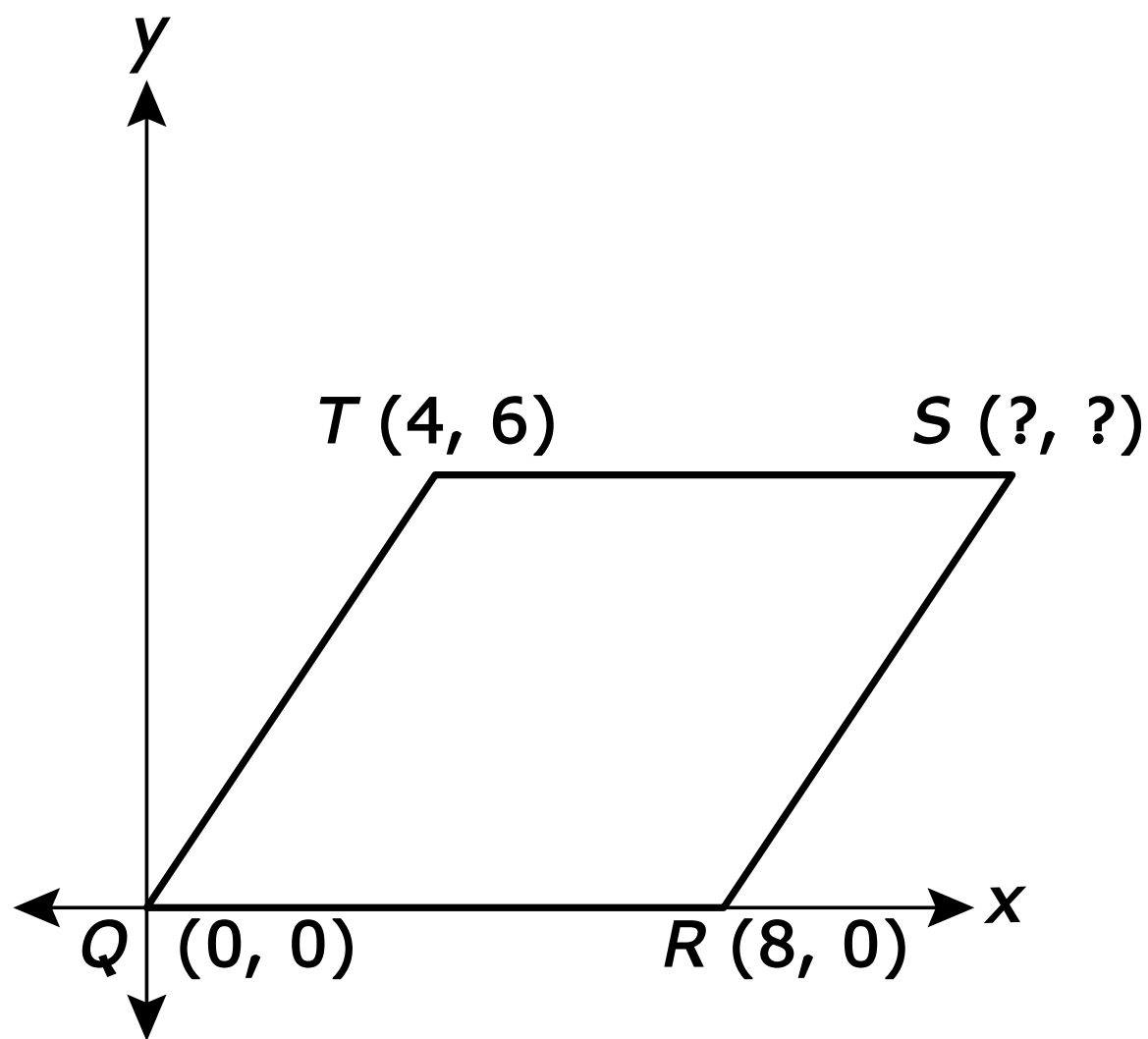
- 6 In this diagram, line d cuts three lines to form the angles shown.



Which two lines are parallel?

- F a and b
- G a and c
- H b and c
- J No lines are parallel.

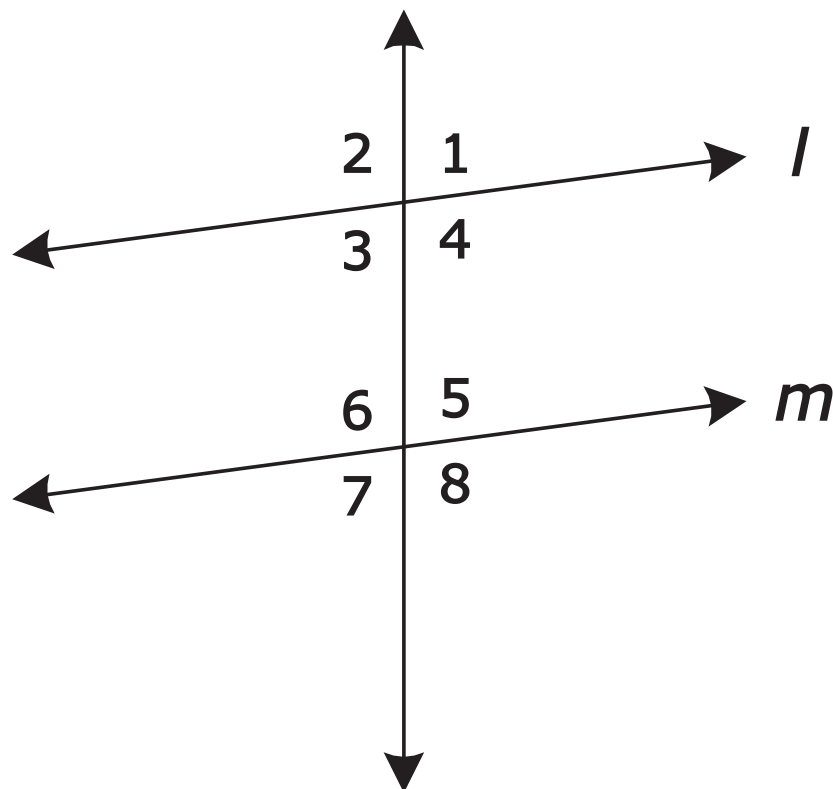
7 Quadrilateral $QRST$ is placed on a coordinate grid as shown.



What coordinates for S make $QRST$ a parallelogram?

- A (8, 6)
- B (8, 10)
- C (12, 6)
- D (12, 10)

8



Which condition will guarantee that line l is parallel to line m ?

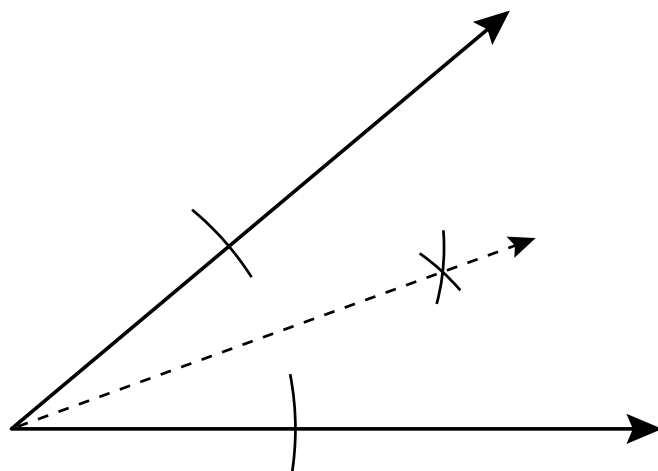
F $\angle 1 \cong \angle 3$

G $\angle 1 \cong \angle 6$

H $\angle 6 \cong \angle 5$

J $\angle 3 \cong \angle 5$

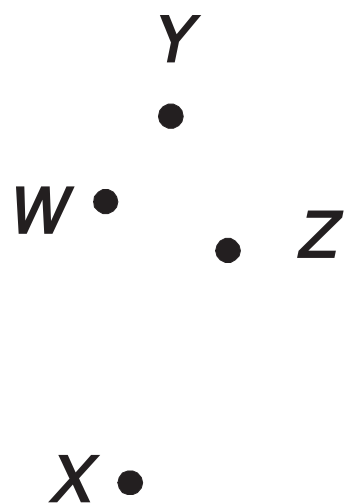
9



The drawing shows a compass and straightedge construction of

- A a perpendicular to a given line from a point not on the line
- B a perpendicular to a given line at a point on the line
- C the bisector of a given angle
- D an angle congruent to a given angle

10



Which point would be on a line perpendicular to l through T ?

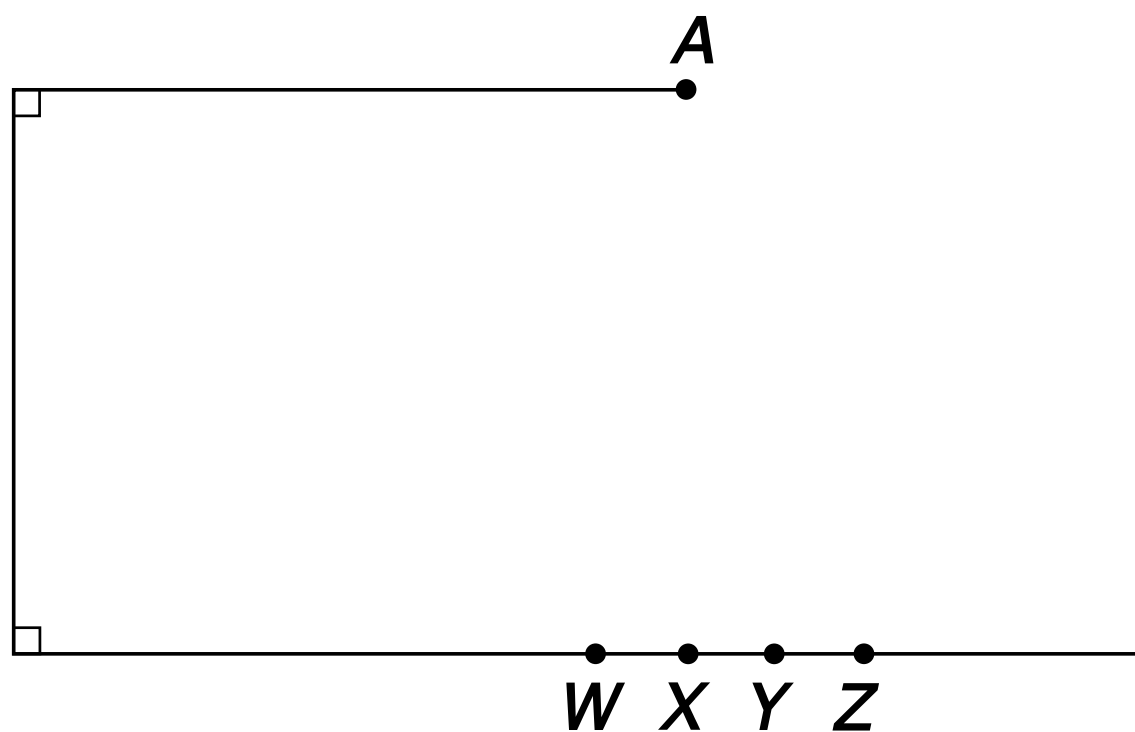
F W

G X

H Y

J Z

11



To which point should a line segment from A be drawn so that the resulting figure is a rectangle?

- A W
- B X
- C Y
- D Z

12 $\triangle XYZ$ is similar to $\triangle STR$. $XY = 6$ and $ST = 12$. If the perimeter of $\triangle STR$ is 38, then what is the perimeter of $\triangle XYZ$?

F 19

G 38

H 52

J 76

13 Let p represent

$$\sqrt{11} = z,$$

and let q represent

z is a rational number.

Which is a representation of the statement below?

If $\sqrt{11} = z$, then z is not a rational number.

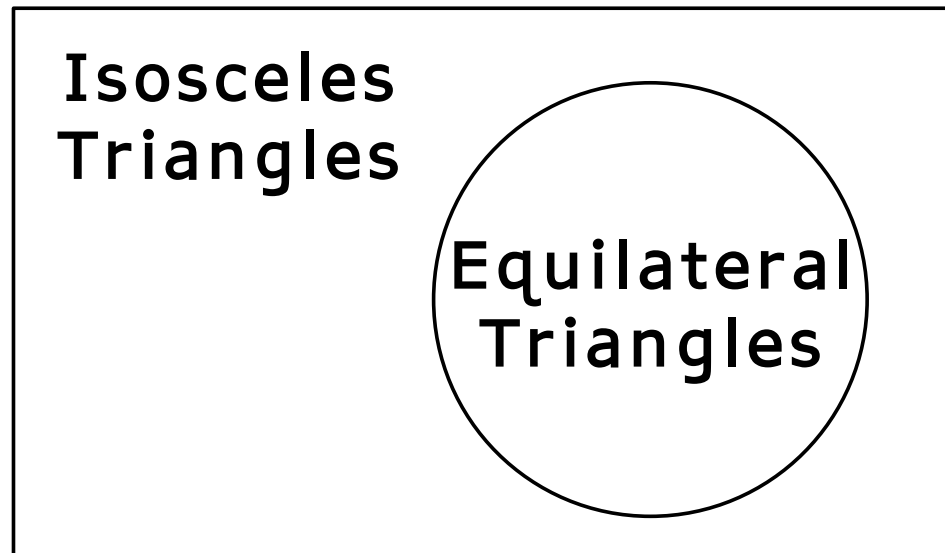
A $\sim p \rightarrow \sim q$

B $p \rightarrow q$

C $p \rightarrow \sim q$

D $\sim q \rightarrow \sim p$

14



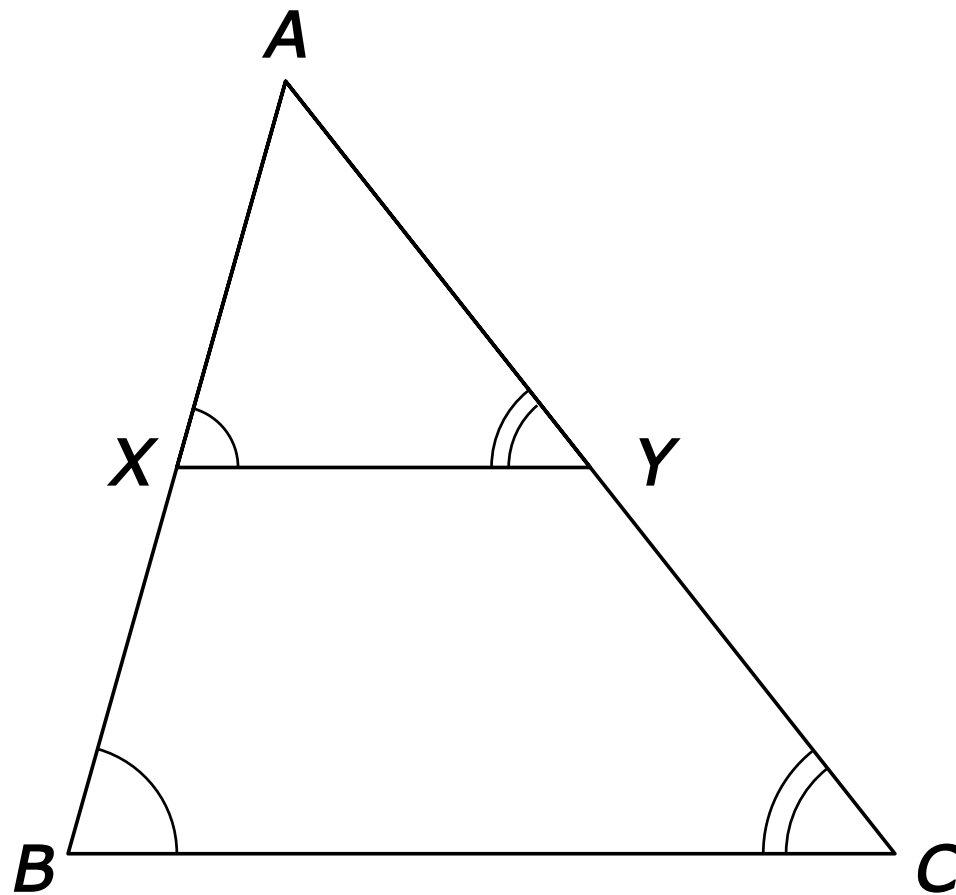
According to the Venn diagram, which statement is true?

- F All isosceles triangles are also equilateral triangles.
- G All equilateral triangles are also isosceles triangles.
- H Some equilateral triangles are also isosceles triangles.
- J No isosceles triangles are equilateral triangles.

15 Which of the following statements represents a valid argument?

- A** If $a > b$ and $a > c$, then $b > c$.
- B** If $a > b$ and $b > c$, then $a > c$.
- C** If $a < b$ and $a < c$, then $c < b$.
- D** If $a > b$ and $a > c$, then $a > b + c$.

- 16 Given: $\angle AXY \cong \angle ABC$
 $\angle AYX \cong \angle ACB$



Which is a true proportion?

F $\frac{AX}{AB} = \frac{AY}{AC} = \frac{XY}{BC}$

G $\frac{AX}{XB} = \frac{AY}{YC} = \frac{XY}{BC}$

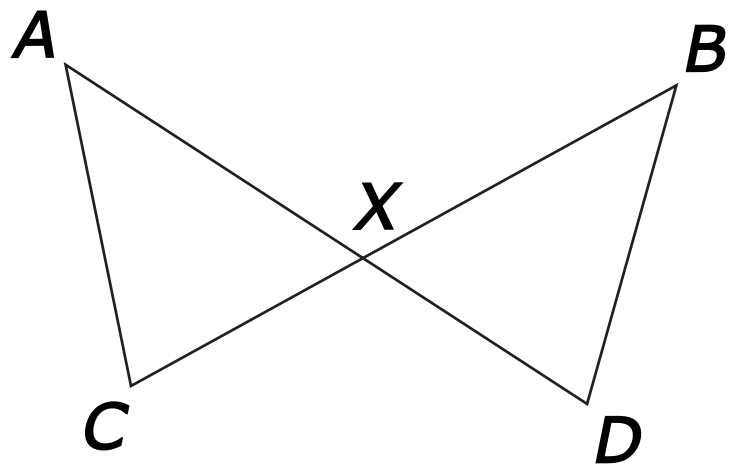
H $\frac{XB}{AX} = \frac{YC}{AY} = \frac{BC}{XY}$

J $\frac{AX}{AB} = \frac{AC}{AY} = \frac{XY}{BC}$

17 Given: \overline{AD} and \overline{BC} intersect at X

$$AX = XB$$

$$CX = XD$$



Which congruency statement is true?

A $\angle ACX \cong \angle BXD$

B $\angle ACX \cong \angle DXB$

C $\angle ACX \cong \angle BDY$

D $\angle ACX \cong \angle DBX$

18 Which list could NOT be the measures of lengths of the three sides of a given triangle?

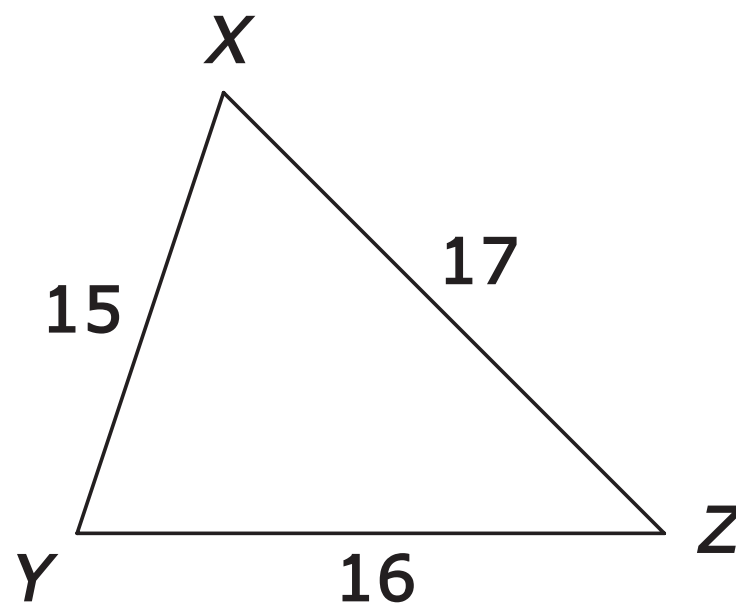
F 5 cm, 12 cm, 15 cm

G 2 ft, 6 ft, 5 ft

H 11 mi, 4 mi, 12 mi

J 12 yd, 35 yd, 20 yd

19



In the drawing of triangle XYZ , which angle has the least measure?

- A All angles have the same measure.
- B $\angle XYZ$
- C $\angle ZXY$
- D $\angle XZY$

20 If $m\angle A = 65^\circ$, $m\angle B = 15^\circ$, $m\angle C = 100^\circ$, which lists the sides of the triangle in order from shortest to longest?

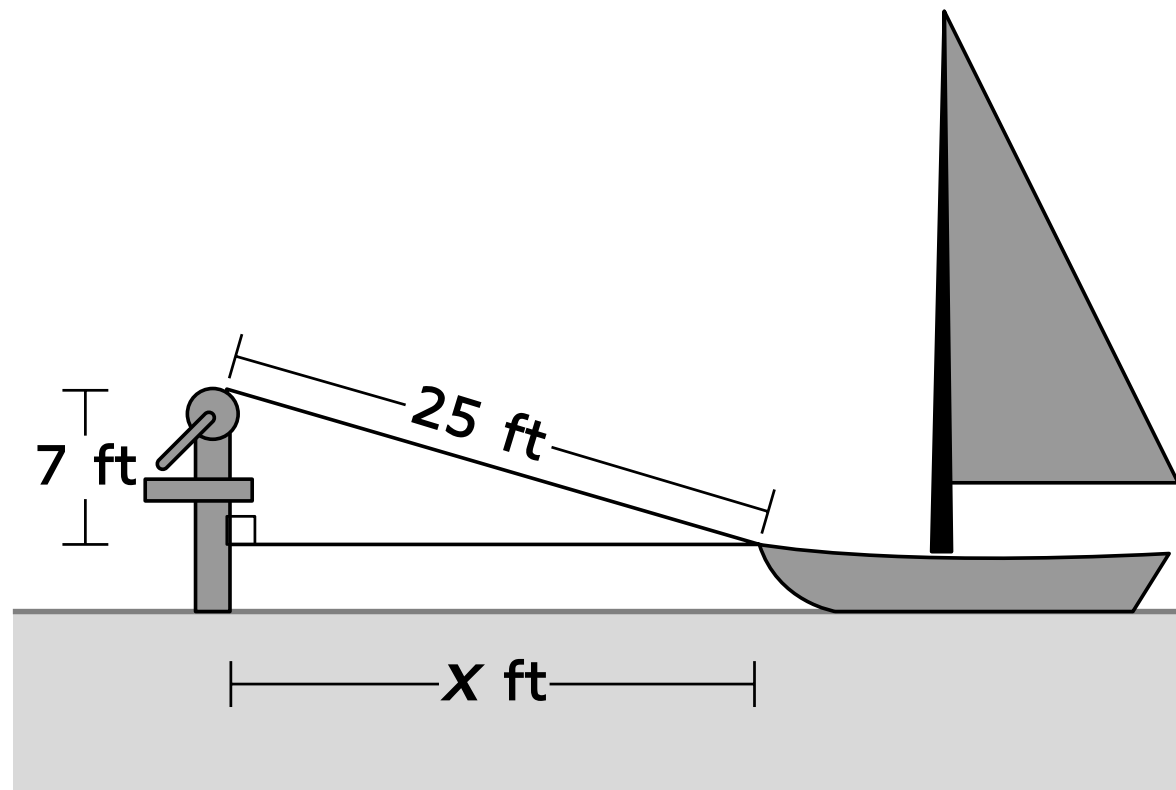
F $\overline{AC}, \overline{AB}, \overline{BC}$

G $\overline{BA}, \overline{BC}, \overline{AC}$

H $\overline{BA}, \overline{AC}, \overline{BC}$

J $\overline{AC}, \overline{BC}, \overline{BA}$

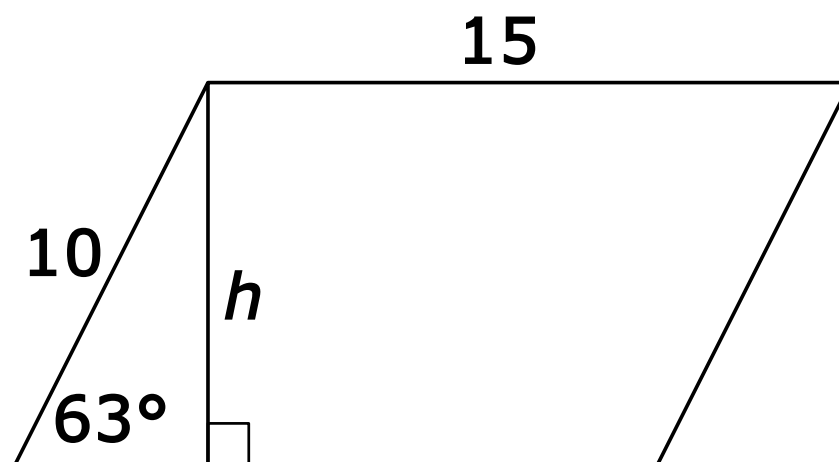
- 21 A windlass is used to pull a boat to the dock. The rope is attached to the boat at a point 7 feet below the level of the windlass.



What is the distance from the boat to the dock when the rope is 25 feet?

- A 25 ft
- B 24 ft
- C 18 ft
- D 7 ft

22 The parallelogram has the measurements shown.



Which is closest to the length of the altitude, h ?

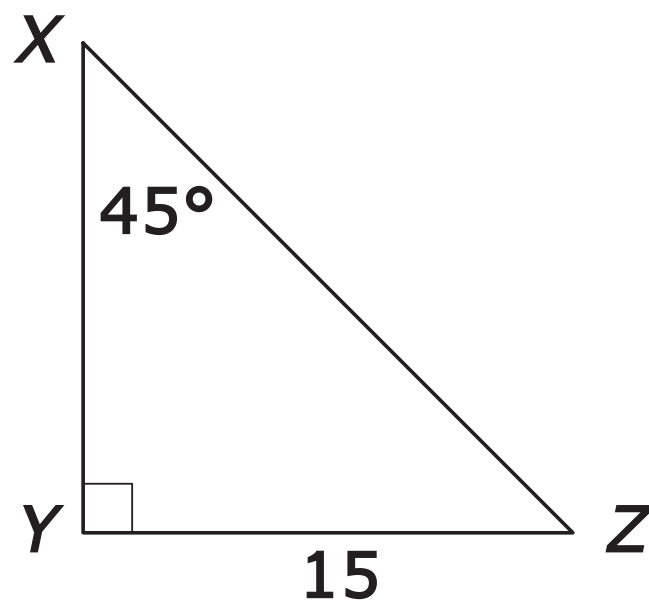
F 19.63

G 8.91

H 8.67

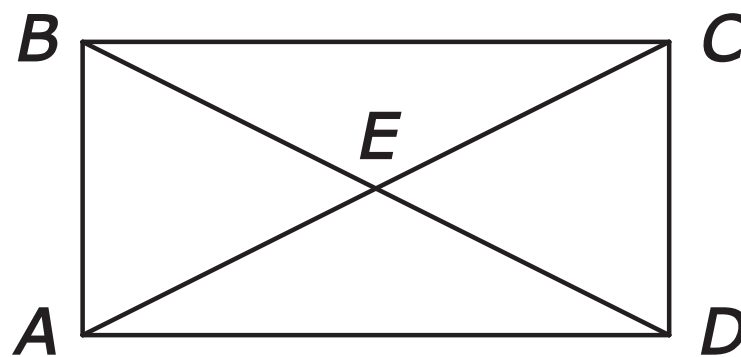
J 6.81

23



For the triangle represented by the above drawing, what is the length of \overline{XZ} ?

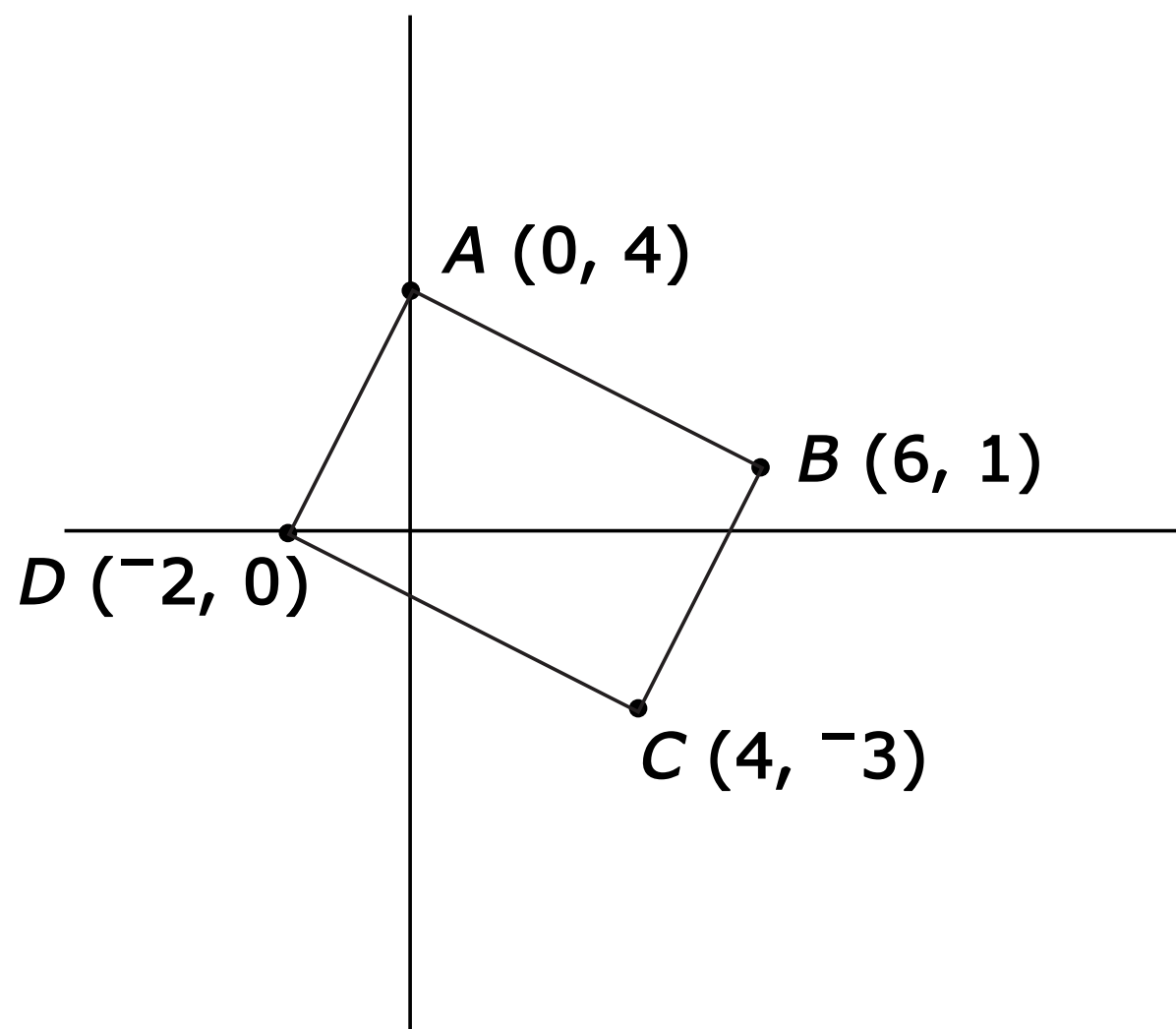
- A $7.5\sqrt{2}$
- B $7.5\sqrt{3}$
- C $15\sqrt{2}$
- D $15\sqrt{3}$



In rectangle $ABCD$, which of the following pairs of segments are NOT necessarily congruent?

- F \overline{BD} and \overline{AC}
- G \overline{AB} and \overline{CD}
- H \overline{BC} and \overline{DC}
- J \overline{BE} and \overline{CE}

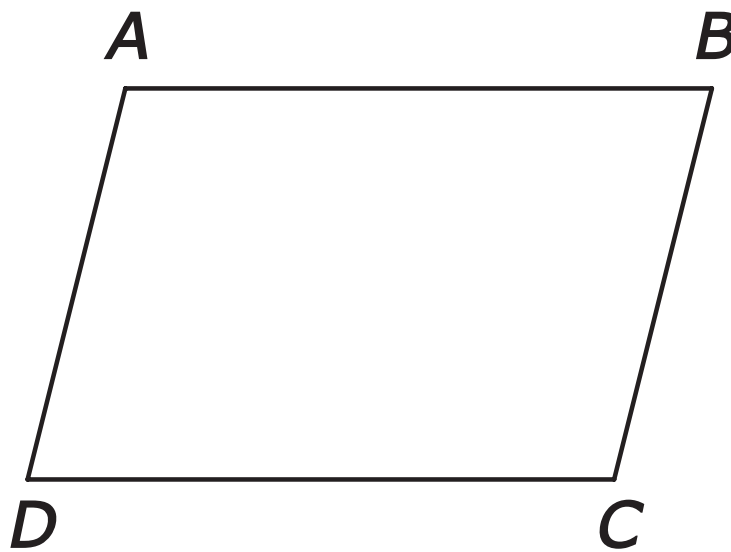
- 25 The town plaza in a certain town is a parallelogram. The town's planning committee has decided to build a fountain at the center of the plaza. This sketch shows the corner points when placed on a coordinate grid.



Which coordinates show where the fountain will be located?

- A (2, 0.5)
- B (0.5, 2)
- C (3, 1.5)
- D (1.5, 1)

26 Quadrilateral $ABCD$ is a parallelogram.



Which of the following **MUST** be true?

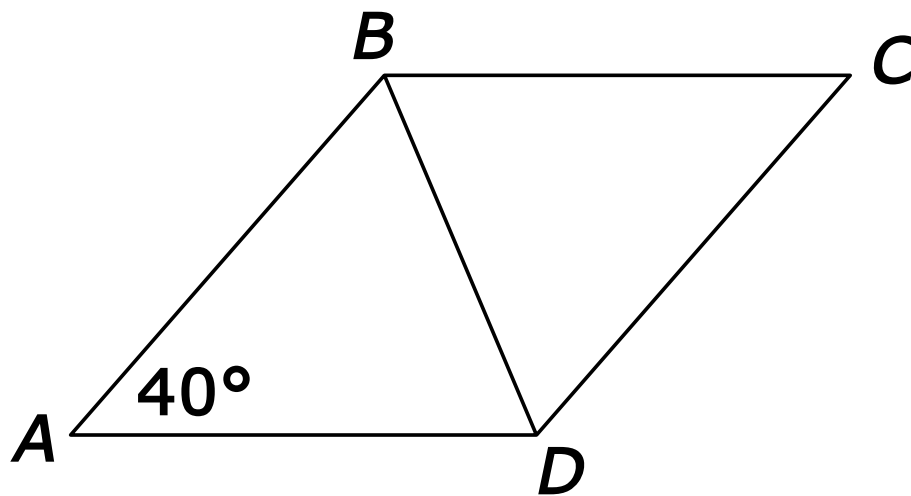
F $\overline{AB} \cong \overline{AD}$

G $\overline{AC} \cong \overline{BD}$

H $\angle A \cong \angle D$

J $\angle B \cong \angle D$

27 $ABCD$ is a rhombus.



What is the measure of $\angle CBD$?

- A 50°
- B 60°
- C 70°
- D 75°

28 If each interior angle of a regular polygon measures 120° , how many sides does the polygon have?

F 14

G 12

H 8

J 6

29 Which angle measure below is NOT a possible measure of an exterior angle of a regular polygon?

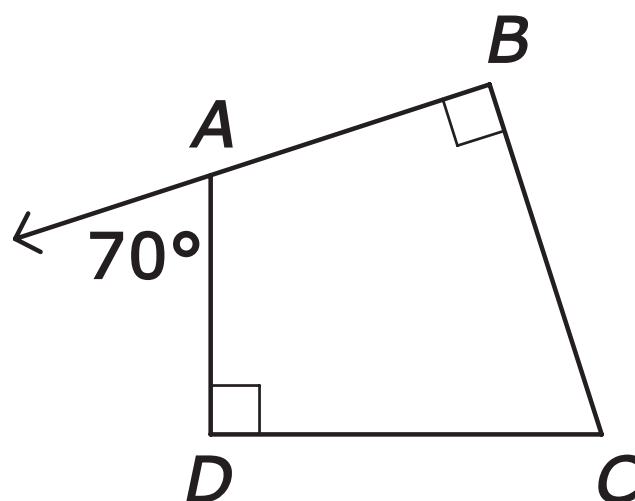
A 36°

B 40°

C 45°

D 54°

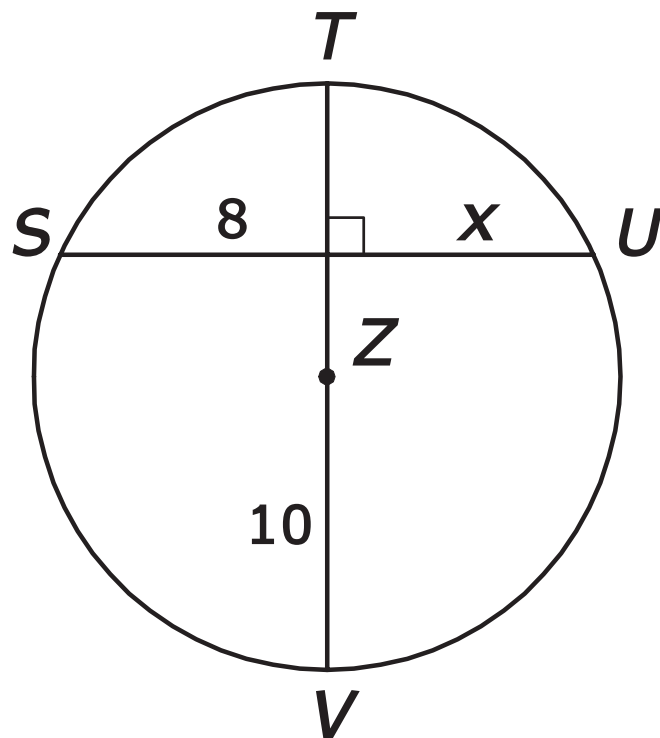
30



In the figure, what is the measure of $\angle C$?

- F 70°
- G 90°
- H 100°
- J 110°

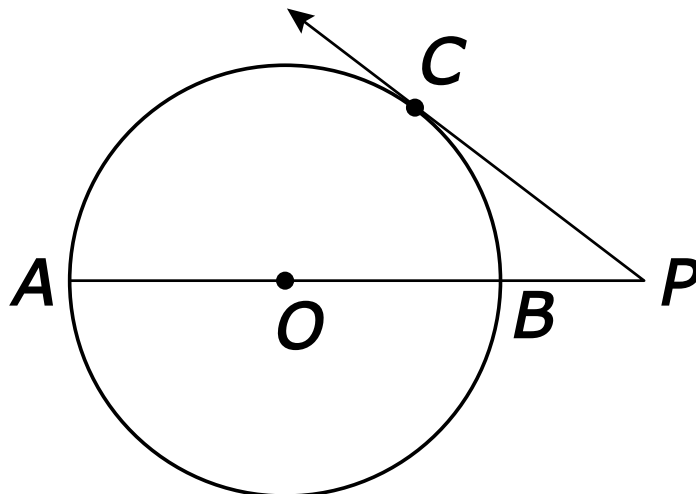
31 \overline{TV} is a diameter of circle Z .



What is the value of x ?

- A 4
- B 6
- C 8
- D 10

32



If $AP = 8$ and $PC = 4$, what is the measure of \overline{AB} , the DIAMETER of this circle?

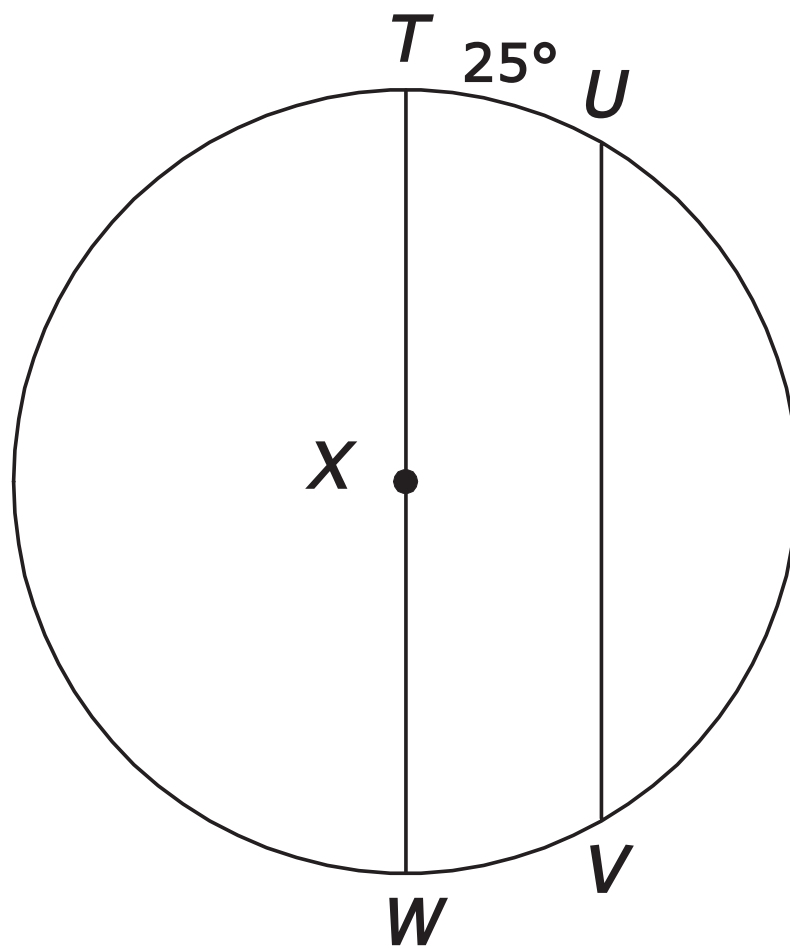
F 2

G 4

H 6

J 8

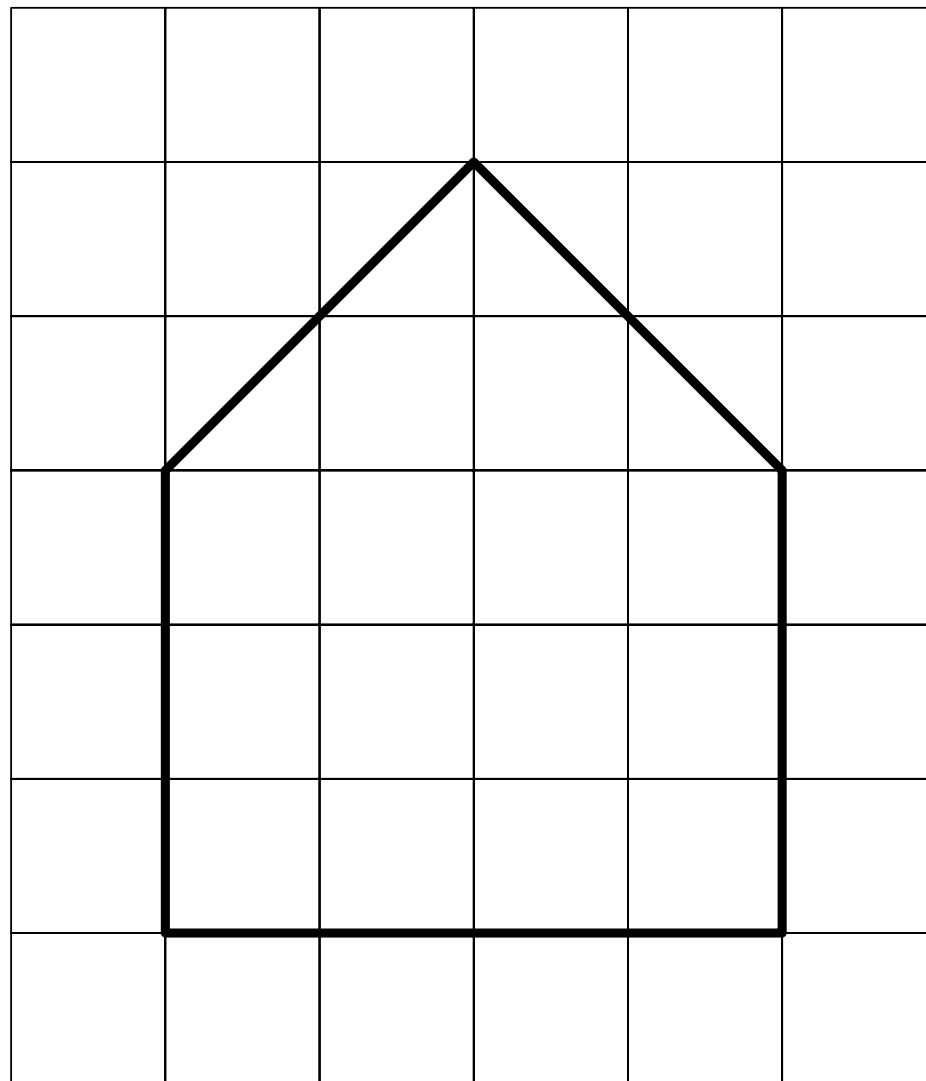
33 \overline{TW} is a diameter of circle X , and \overline{TW} is parallel to \overline{UV} .



If the measure of \widehat{TU} is 25° , what is the degree measure of \widehat{UV} ?

- A 115°
- B 130°
- C 155°
- D 210°

34 This is a scale drawing of a tent where 1 centimeter represents 0.5 meter.



1 cm $\left| \right.$ 0.5 m

What is the height of the tent at its highest point?

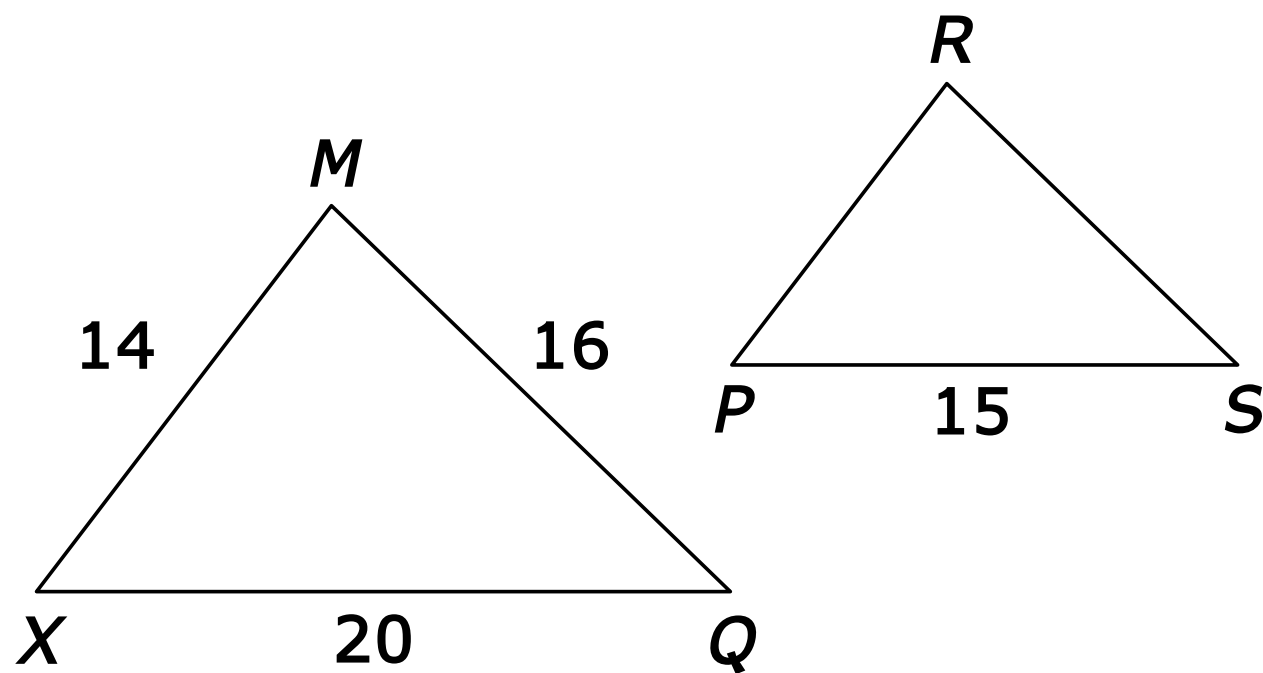
- F 10 m
- G 5 m
- H 3 m
- J 2.5 m

35 To the nearest gallon, what is the volume of a cylindrical water heater 1.4 feet in diameter and 4 feet tall? (1 cubic foot = 7.48 gallons)

- A 34 gal
- B 46 gal
- C 59 gal
- D 132 gal

36 A spherical paintball measures 1.5 centimeters in diameter. Approximately how much paint is in it?

- F 1.77 cm^3
- G 7.07 cm^3
- H 9.42 cm^3
- J 14.13 cm^3



Which proportion can be used to find the value of \overline{PR} if $\triangle XMQ$ is similar to $\triangle PRS$?

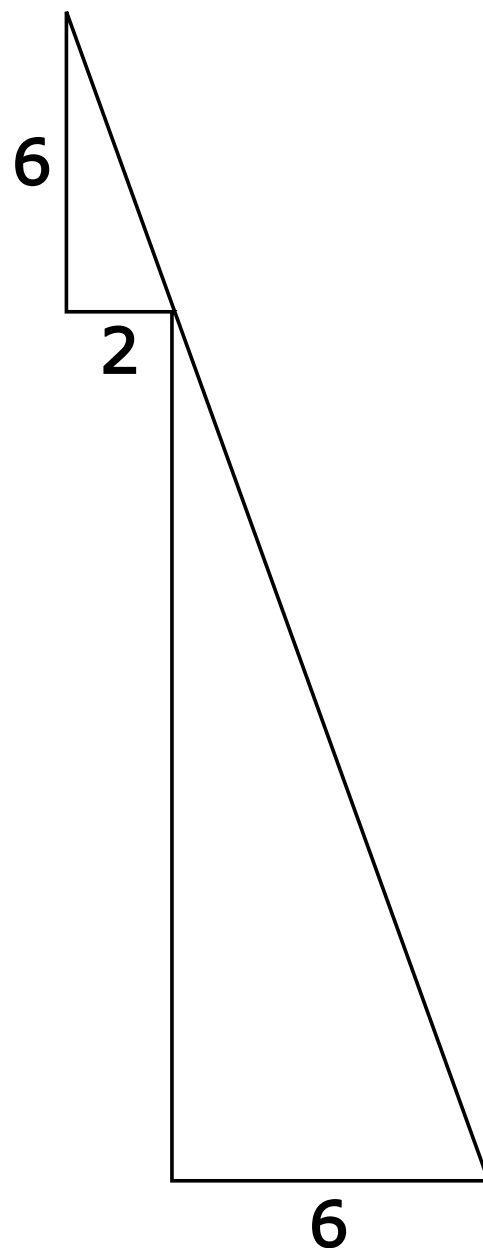
A $\frac{20}{15} = \frac{14}{PR}$

B $\frac{10}{5} = \frac{7}{PR}$

C $\frac{14}{20} = \frac{15}{PR}$

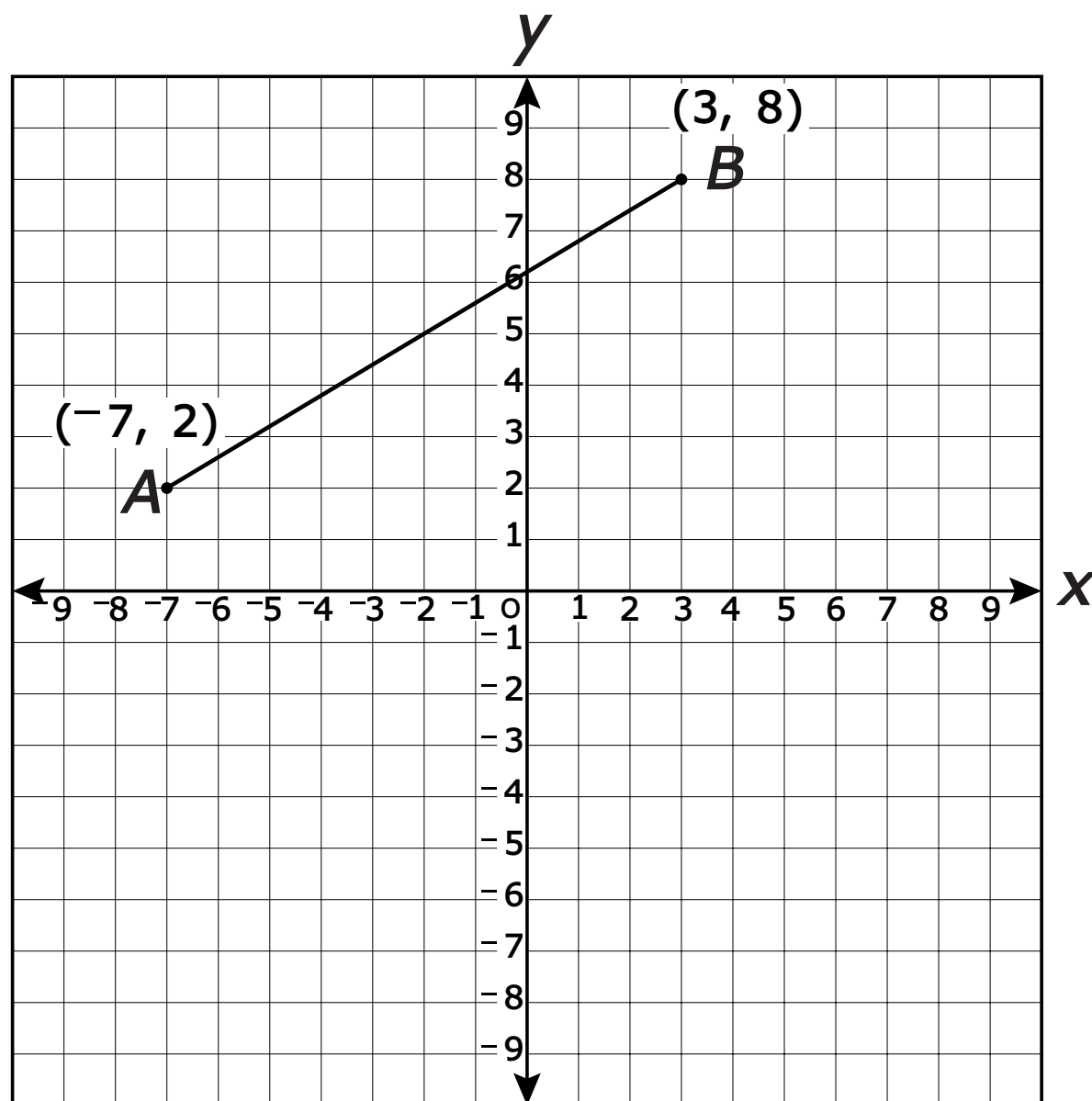
D $\frac{15}{20} = \frac{14}{PR}$

- 38 When standing upright, Gary knows his eyes are 6 feet above ground level. To determine the depth of a well, he stands in the position shown.



Using the given measures, how deep is the well?

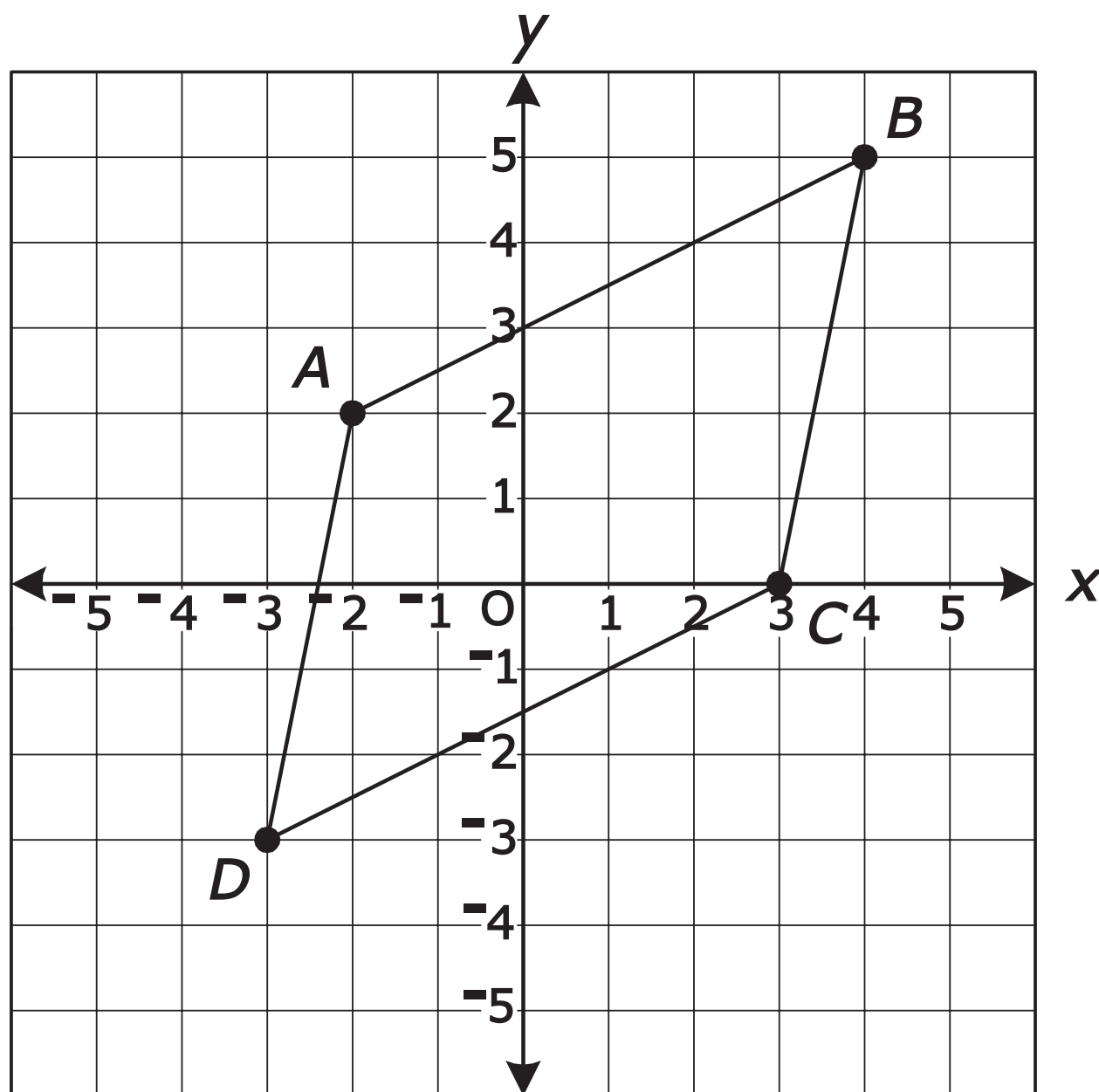
- F 12 ft
- G 14 ft
- H 16 ft
- J 18 ft



The coordinates of the midpoint of \overline{AB} are

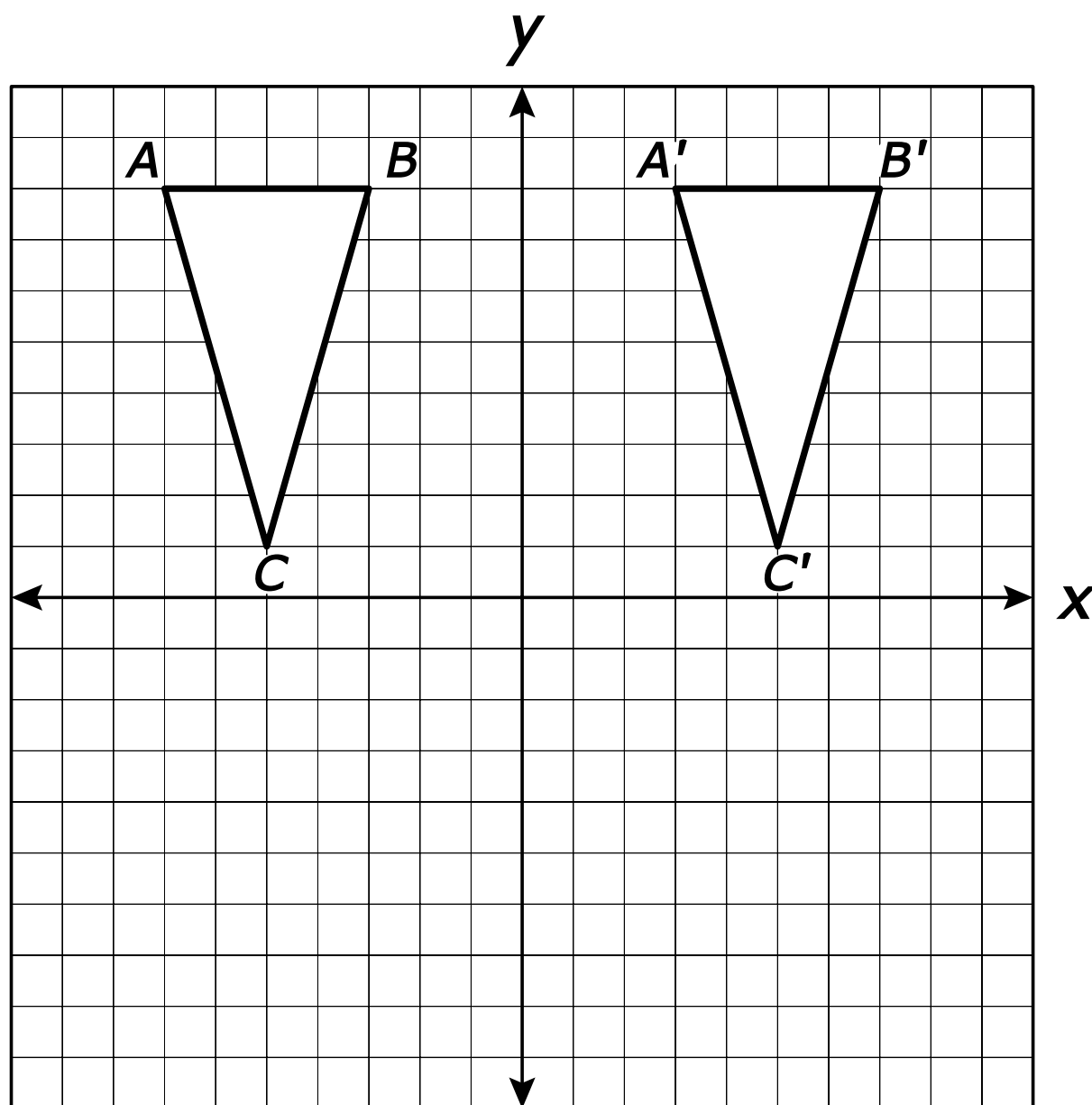
- A $(5, 3)$
- B $(-5, 3)$
- C $(2, 5)$
- D $(-2, 5)$

40 Parallelogram $ABCD$ is placed on a coordinate grid as shown.



What is the approximate length of diagonal \overline{AC} ?

- F 3.0 units
- G 5.4 units
- H 9.0 units
- J 10.6 units



Triangle $A'B'C'$ is

- A a translation of triangle ABC across the y -axis
- B a 90° clockwise rotation of triangle ABC about the origin
- C a reflection of triangle ABC across the y -axis
- D a reflection of triangle ABC across the x -axis

42 How many different lines of symmetry does a square have?

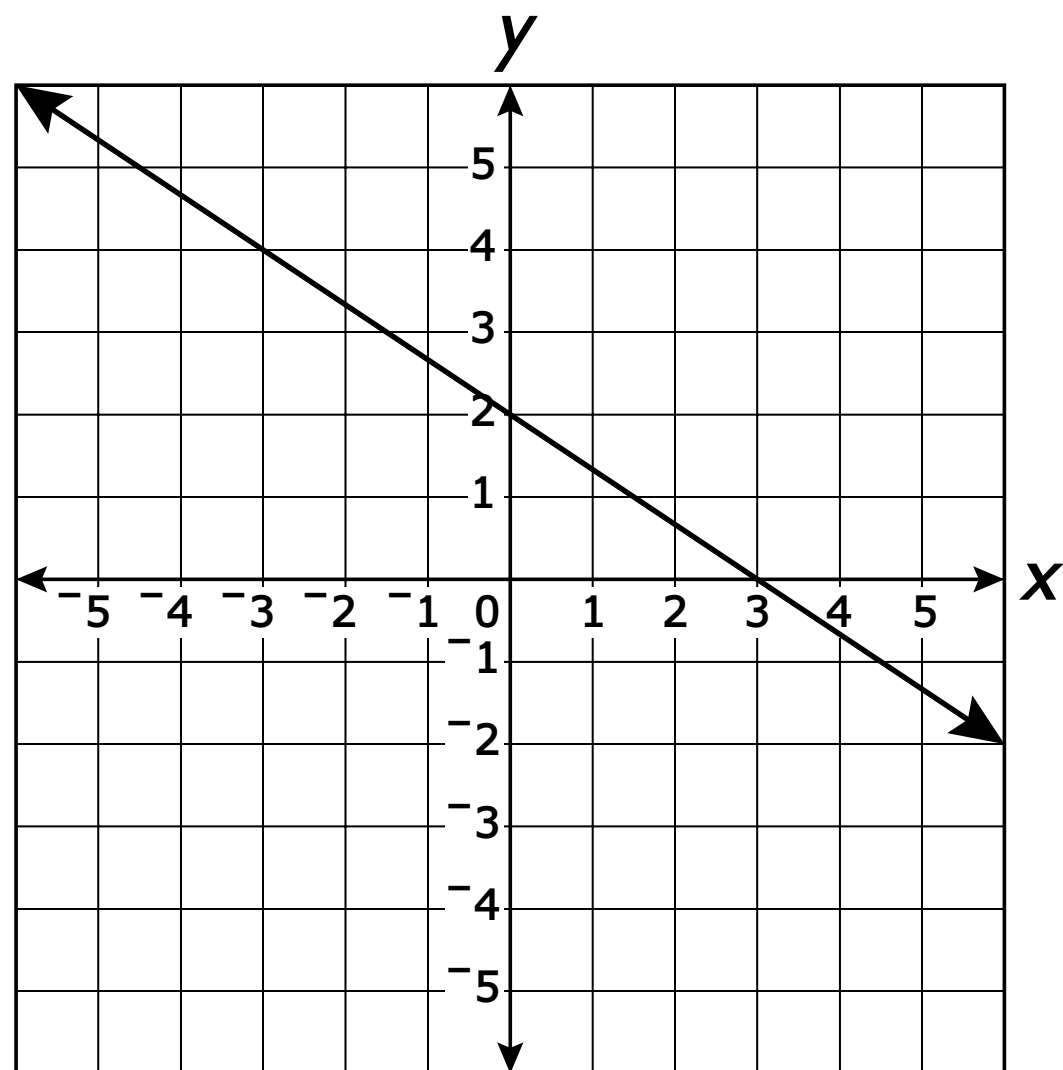
F 1

G 2

H 3

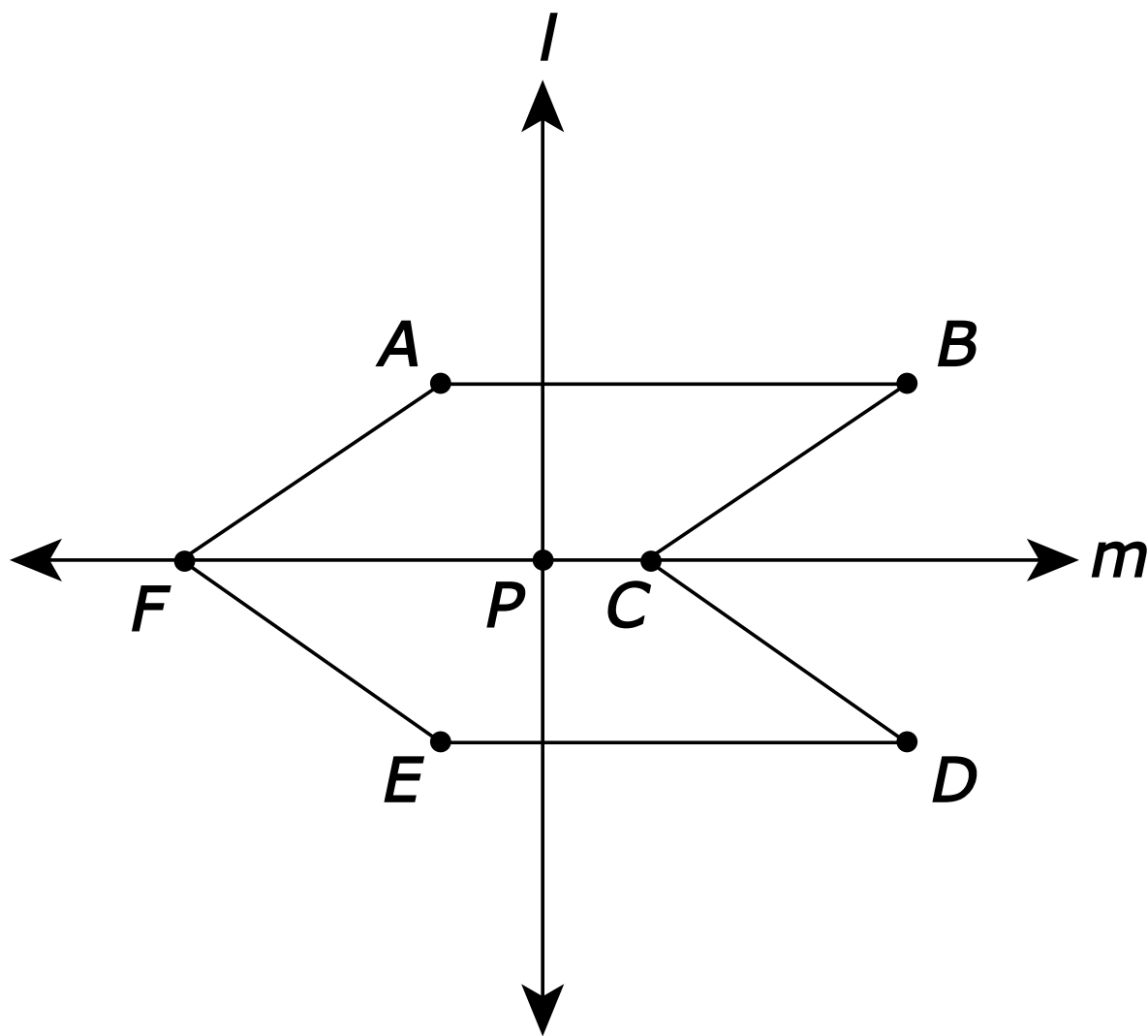
J 4

43



Which is most likely the slope of the line graphed?

- A -4
- B $-\frac{3}{2}$
- C $-\frac{2}{3}$
- D 4



Hexagon $ABCDEF$ is apparently symmetric with respect to

- F point P only
- G line m only
- H line l only
- J both lines l and m only

Answer Key

Test Sequence Number	Correct Answer	Reporting Category	Reporting Category Description
1	B	001	Lines and Angles
2	H	001	Lines and Angles
3	B	001	Lines and Angles
4	F	001	Lines and Angles
5	B	001	Lines and Angles
6	H	001	Lines and Angles
7	C	001	Lines and Angles
8	J	001	Lines and Angles
9	C	001	Lines and Angles
10	H	001	Lines and Angles
11	B	001	Lines and Angles
12	F	002	Triangles and Logic
13	C	002	Triangles and Logic
14	G	002	Triangles and Logic
15	B	002	Triangles and Logic
16	F	002	Triangles and Logic
17	C	002	Triangles and Logic
18	J	002	Triangles and Logic
19	D	002	Triangles and Logic
20	J	002	Triangles and Logic
21	B	002	Triangles and Logic
22	G	002	Triangles and Logic
23	C	002	Triangles and Logic
24	H	003	Polygons and Circles
25	A	003	Polygons and Circles
26	J	003	Polygons and Circles
27	C	003	Polygons and Circles
28	J	003	Polygons and Circles
29	D	003	Polygons and Circles
30	F	003	Polygons and Circles
31	C	003	Polygons and Circles
32	H	003	Polygons and Circles
33	B	003	Polygons and Circles
34	J	004	Three-Dimensional Figures
35	B	004	Three-Dimensional Figures
36	F	004	Three-Dimensional Figures
37	A	004	Three-Dimensional Figures
38	J	004	Three-Dimensional Figures
39	D	005	Coordinate Relations and Transformations
40	G	005	Coordinate Relations and Transformations
41	A	005	Coordinate Relations and Transformations
42	J	005	Coordinate Relations and Transformations
43	C	005	Coordinate Relations and Transformations
44	G	005	Coordinate Relations and Transformations



1 2 3 4 5 6 7 8 9 10 11 12 A B C D E